UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

No.: _____

1. SPECIFICATION:

a. **Title of Invention:** Offshore Energy Platform.

b. **Statement Regarding Federally Sponsored Research or Development:** Applicant has not received any federally sponsored research or development assistance.

c. **Reference to a Microfiche Appendix:** Applicant does not have a microfiche appendix.

d. **Background of the Invention:**

1. Field of Invention: Applicant's invention relates to a new use field method and means to generate electrical energy by combining a known type of wind driven turbine and a known type of subsurface water current driven turbine together on a common offshore structure to produce electrical energy.

2. Description of Related Art: There are several designs of energy generating systems such as the windmill type wind turbine generator which is usually set upon a tower on land, and more recently offshore. The offshore wind turbines are considered more efficient than land based wind turbines. There are several hydro-electric turbines that use stored water from dams, rivers, wave action, and water current kinetic energy, such as the subsurface hydrokinetic generator, US Patent No.: 6,472,768, to generate electrical energy. A combination of a wind turbine and ocean swell powered generator called a Wind and Ocean Swell Power or WOSP, which exists in the United Kingdom and works by ocean wave action

and wind power.

Applicant's offshore energy platform combines a wind turbine and a subsurface hydrokinetic generator, driven by water currents such as the Gulf Stream, and wind power.

e. Brief Summary of the Invention: A method and means for generating electrical energy via an offshore energy platform using an attached wind driven turbine and a subsurface water current driven turbine.

Applicant's offshore energy platform consists of a subsurface structure extending from the ocean floor to a platform above the surface. The subsurface structure would support a subsurface water current driven turbine and the structure above the surface would support a tower and wind driven turbine. The entire structure would have to be rigid enough to support both turbines and there respective applied forces of wind and water current. While the water driven turbine below the surface would have to face the direction of the oncoming water current force, the wind driven turbine atop the platform tower above the surface, would be omni-directional and adjust to the oncoming wind directional force.

The offshore energy platform would be connected to an onshore power grid through subsurface electrical cable. Theoretically, the offshore energy platform should generate two to three times more energy than either stand-a-lone systems, additionally, each platform could be used for, marine navigation aids, communication towers, environmental monitoring stations, and provide early warning stations which monitor offshore water craft and low altitude air traffic.

Further objects and advantages of Applicant's offshore energy platform will become apparent from a consideration of the drawings and ensuing description.

2. DRAWINGS:

a. Brief Description of the Drawings:

Figure 1: A perspective view.

Figure 2: A front view.

Figure 3: A side view.

Figure 4: A rear view.

Figure 5: A top view.

Figure 6: A bottom view.

1. Elements of the Figures:

No.: 7 - Hydrokinetic Generator Housing

No.: 8 - Vertical Stabilizer

No.: 9 - Vertical Center Support

No.: 10 - Protective Grill

No.: 11 - Front Supports

No.: 12 - Rear Supports

No.: 13 - Rear Housing Supports

No.: 14 - Platform Base

No.: 15 - Vertical Drive Shaft Housing

No.: 16 - Main Platform

No.: 17 - Upper Platform Supports

No.: 18 - Upper Platform

No.: 19 - Remote Generator

No.: 20 - Wind Turbine Generator

No.: 21 - Wind Turbine Tower

No.: 22 - Wind Turbine Blades

No.: 23 - Water Turbine Blades

No.: 24 - Wind Turbine Hub

No.: 25 - Water Turbine Hub

No.: 26 - Water Surface Line

b. Detailed Description of the Invention:

Figure 1: A perspective view of the offshore energy platform detailing the main platform 16 and its superstructure. The main platform 16 is supported by two front supports 11 which are attached to the base 14, and support the front of the hydrokinetic generator housing 7. Two rear supports 12 are also supporting the rear of the hydrokinetic generator housing 7 by rear housing supports 13. The front supports 11 and the rear supports 12 are hydrodynamically shaped to produce minimal drag and must face the oncoming water current. The subsurface hydrokinetic generator housing 7 has a vertical stabilizer 8 to aid in keeping the hydrokinetic generator housing 7 facing the water current. There is a vertical center support 9 which provides strength for the hydrokinetic generator 7 and the protective grill 10 to keep debris and large sea life from entering the housing orfice. A vertical drive shaft housing 15 houses a drive shaft and is hydrodynamically shaped to reduce drag. The drive shaft transfers rotational energy from the hydrokinetic generator turbine to a remote generator 19 mounted on the main platform 16. The hydrokinetic generator can be mounted below the surface and attached to the hydrokinetic generator housing 7. Upper platform supports 17 support an upper platform 18, which supports the wind turbine tower 21. The wind turbine tower 21 can be mounted to the lower main platform 16, and the upper platform 18 and the upper platform supports 17 can be eliminated. The wind turbine tower 21 supports a wind turbine generator 20 which has

wind turbine blades 22 attached to the wind turbine generator 20 by a wind turbine hub 24. Both generators are connected to an onshore power grid by subsurface electrical cables. Different wind turbines can be used which differ from the illustrated wind turbine, such as the Darrieus vertical axis wind turbine. Different subsurface turbines can be used instead of the hydrokinetic generator illustrated, such as a single propeller, or the Gorlov Helical turbine for examples.

Figure 2: A front view of the offshore energy platform detailing the hydrokinetic generator housing 7 attached to the front supports 11 which are connected to the platform base 14. The vertical center support 9 strengthens the hydrokinetic generator housing 7 orfice. The protective grill 10 keeps debris and large sea life from entering the orfice. A vertical drive shaft housing 15 protects the drive shaft which transfers rotational energy to the remote generator 19 which is attached to the main platform 16. Upper platform supports 17 support the upper platform 18. The wind turbine tower 21 is attached to the upper platform 18, and supports the wind turbine generator 20. Wind turbine blades 22 are attached to the wind turbine generator 20 by a wind turbine hub 24. The water surface line 26 shows the water level in relation to the platform.

Figure 3: A side view of the offshore energy platform detailing the platform bases 14 which are hydrodynamically shaped to produce minimal drag yet rigid enough to withstand the dual forces applied. Front supports 11 are hydrodynamically shaped to produce minimal drag and rigid enough to support the hydrokinetic generator housing 7, which is also hydrodynamically shaped. Rear supports

12 are hydrodynamically shaped to produce minimal drag and support the rear of the hydrokinetic generator housing 7. The vertical center support 9 supports the hydrokinetic generator housing 7, and the protective grill 10 keeps debris and large sea life from entering the housing orfice. A vertical stabilizer 8 keeps the hydrokinetic generator housing 7 aligned with the oncoming water current and aid in attaching the housing to the subsurface structure of the offshore energy platform. A vertical drive shaft housing 15 protects the drive shaft which transfers rotational energy from the subsurface turbine to the remote generator 19 located on the main platform 16. Upper platform supports 17 support the upper platform 18, which attaches the wind turbine tower 21 to the platform. The wind turbine generator 20 sets atop the wind turbine tower 21 and is connected to the wind turbine blades 22 by a wind turbine hub 24. An alternative system could use a common generator for both turbines. The water surface line 26 shows the level of the water in relation to the offshore energy platform.

Figure 4: A rear view of the offshore energy platform detailing the platform bases 14, with the attached rear supports 12. The rear of the hydrokinetic generator housing 7 is supported by the rear housing supports 13. The water turbine blades 23 are attached to the water turbine hub 25. A drive shaft transfers rotational energy from the water turbine blades 23, to the remote generator 19 through a vertical drive shaft housing 15. The vertical stabilizer 8 is the same width as the vertical drive shaft housing 15 which passes through the vertical stabilizer 8 to the water turbine hub 25. The remote generator 19 is attached to the main platform 16

in which the upper platform 18 is attached to the main platform 16 by upper platform supports 17. A wind turbine tower 21 is attached to the upper platform 18. A wind turbine generator 20 sets atop of the wind turbine tower 21, and is connected to the wind turbine blades 22 by a wind turbine hub 24. The water surface line 26 shows the water level in relation to the offshore energy platform.

Figure 5: A top view of the offshore energy platform detailing the wind turbine blades 22 attached to the wind turbine generator 20. Upper platform 18 supports the wind turbine tower with the wind turbine generator 20 atop. Upper platform supports 17 are attached to the main platform 16, on which also rests the remote generator 19 which is driven by a drive shaft protected by a vertical drive shaft housing 15. The drive shaft housing 15 passes through the vertical stabilizer 8 to the water turbine housed in the hydrodynamically shaped hydrokinetic generator housing 7. A vertical center support 9 supports the housing orfice and the protective grill 10 keeps debris and large sea life from entering the housing orfice. The hydrokinetic generator housing 7 is attached to the front supports 11 which are attached to the platform bases 14. The rear of the hydrokinetic generator housing 7 is attached to the rear supports 12 by rear housing supports 13. Rear supports are connected to the platform bases 14.

Figure 6: A bottom view of the offshore energy platform detailing the platform bases 14, which support the front supports 11 and rear supports 12 which support the hydrodynamically shaped hydrokinetic generator housing 7 by the rear housing supports 13.